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UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH ADMINISTRATION  
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

I N S E C T P E S T S U R V E Y

A

SPECIAL SUPPLEMENT (1945, No. 5)

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REPORT UPON COOPERATIVE POTATO TUBER WORM SURVEY IN 1944

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Cooperation with State and Experiment Station Entomologists

The cooperative potato tuber worm survey of 1944 followed essentially the same procedure as during the preceding two years and included a systematic examination of potato fields, commercial and farm storages, packing sheds, track storages, and cull piles, as well as fields of host plants other than potato such as tobacco, tomato, eggplant, pepper, and susceptible weeds. The various Federal and State cooperators made examinations for this insect in the 34 states listed below:

Alabama	Kentucky	Ohio
Arizona	Maine	Oregon
Arkansas	Maryland	Pennsylvania
California	Massachusetts	Rhode Island
Connecticut	Michigan	Tennessee
Delaware	Minnesota	Texas
Florida	Nevada	Vermont
Georgia	New Hampshire	Virginia
Idaho	New Mexico	Washington
Illinois	New York	West Virginia
Indiana	North Carolina	Wisconsin
	North Dakota	

Some of these examinations were made incidental to other survey activities, principally the golden nematode survey, the oriental fruit moth survey, and the survey made primarily at and in the vicinity of Ports of Entry with particular reference to a search for introduced insects.

The principal data obtained during the 1944 survey are summarized in table 1. It will be noted that during this survey a total of 335 counties were examined in the 34 states, which required a total of 5659 man-hours. This work involved the examination of 3091 potato fields and garden plantings of potatoes, 516 potato storages, packing houses, and

similar situations, 70 tobacco fields and 263 fields of miscellaneous crops or patches of wild host plants.

The potato tuber worm was found during 1944, and positive identification made by specialists of the Division of Insect Identification of this Bureau, in the following 17 States:

Alabama	Georgia	Pennsylvania
Arizona	Indiana	Tennessee
Arkansas	Maryland	Texas
California	North Carolina	Virginia
Delaware	Ohio	Washington
Florida		Wisconsin

In addition, the insect was collected and identified from potatoes in storage found in two localities of Nevada that had originated outside the State. No infestation was found in Connecticut, Idaho, Illinois, Kentucky, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Mexico, New York, North Dakota, Oregon, Rhode Island, Vermont, or West Virginia.

A list of counties found infested by the potato tuber worm during the 1944 survey is given in table 2. A list of the counties examined for the potato tuber worm during this survey is given in table 3.

According to the information given in Insect Pest Survey Bulletin 21, Supplement to No. 9 (Nov. 8, 1941) under the title of "Records of Distribution of the Potato Tuber Worm (Gnorimoschema overculella (Zell.)) in the United States," the potato tuber worm had not been found in the field in Delaware prior to 1944, although this insect had been recorded previously from stored potatoes in that State. In the instance of Pennsylvania, a heavy infestation of the potato tuber worm was found near Shippensburg, Cumberland County, during 1930, but this infestation was reported as being eradicated and the 1944 record is the first field infestation found since that date. In the State of Washington the cooperative survey during 1942 failed to reveal the presence of the insect but a single specimen was found in the field during 1944.

Thanks are expressed to the State authorities who participated in the survey, to the personnel of other Divisions of the Bureau who were designated to assist in this work and also to the specialists of the Division of Insect Identification of this Bureau for their painstaking work in making specific identifications of the material submitted.

The attached colored map shows the following important information obtained during the 1942-1943-1944 cooperative potato tuber worm survey: (1) counties or parishes where the insect was found in potatoes. (2) Counties or parishes where the insect was found in tobacco, other crops, or wild host plants. (3) Counties or parishes surveyed, but no potato tuber worm infestation found. (4) Areas to be surveyed for potato tuber worm as resources permit.



## Review of Results During Three-Year Period 1942-1944

A review of the information obtained during the cooperative potato tuber worm surveys for the 3-year period 1942 to 1944, inclusive, discloses that, on the basis of material originating from local sources, the insect has been found and identified by specialists in the following 23 states:

Alabama	Indiana	Pennsylvania
Arizona	Louisiana	South Carolina
Arkansas	Maryland	Tennessee
California	Mississippi	Texas
Colorado	Nebraska	Virginia
Delaware	New Jersey	Washington
Florida	North Carolina	Wisconsin
Georgia	Ohio	

With the exceptions of Tennessee, where the sole find was made in tobacco growing in the field, and in Georgia where the infestations were found in tobacco and in wild host plants, the potato tuber worm was collected from potato leaves, stems, stalks, or tubers in the field, or in potato storages of local origin, in the remaining 21 states, at some time during the 3-year period involved.

A report upon the 1942 survey was given at the National Plant Board Conference at Baltimore, Maryland, during the period October 12-14, 1942. This report was distributed as a part of the "Minutes of the Eighteenth Annual Meeting of the National Plant Board." A report upon the 1943 survey was given in a Special Supplement to the Insect Pest Survey dated May 1, 1944, entitled "Report Upon Cooperative Potato Tuber Worm Survey in 1943."

Appendix: Since this report was prepared the following additional information has been received:

1. The potato tuber worm was collected and identified during March 1945 from potatoes growing in a greenhouse at Laramie, Wyoming. The original source of this infestation is not known since the samples of potatoes involved originated from points outside Wyoming as well as from within the state.
2. During March 1945 a total of 15 potato storages, having a total capacity of approximately 314,000 bushels, were inspected in the counties of Hartford, Tolland, and New Haven in Connecticut. Most of these storages were empty at the time of inspection but the remaining commercial grade potatoes and culls present in and about the storages were examined. A total of 15 man-hours were devoted to these inspections. No specimens of the potato tuber worm were found.

Table 1. Extent of cooperative survey on the potato tuber worm during 1944 and the infestations found

State	Estimated Number of Man-Hours Devoted to Survey										Number of Counties Infested - by Plants and									
	in										Locations									
	Number	Potatoes	Potatoes	Sto-	To-	Other	To-	Potato	Potato	Storages	To-	Other	To-	Potato	Potato	Storages	To-	Other	To-	Potato
	of	Fields:	Fields:	Fields:	Fields:	Fields:	Fields:	Fields:	Fields:	Fields:	Fields:	Fields:	Fields:	Fields:	Fields:	Fields:	Fields:	Fields:	Fields:	Fields:
	Counties	and	and	and	and	and	and	and	and	and	and	and	and	and	and	and	and	and	and	and
	Surveyed	Gardens:	Gardens:	Gardens:	Gardens:	Gardens:	Gardens:	Gardens:	Gardens:	Gardens:	Gardens:	Gardens:	Gardens:	Gardens:	Gardens:	Gardens:	Gardens:	Gardens:	Gardens:	Gardens:
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alabama	10	91	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arizona	2	28	160	53	83	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arkansas	8	150	94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
California	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Connecticut	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delaware	1	2	44	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Florida	1	44	98	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Georgia	7	20	570	81	26	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Idaho	15	12	161	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Illinois	4	12	489	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Indiana	4	20	413	232	34	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kentucky	4	570	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maine	2	161	489	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maryland	11	12	413	232	34	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Massachusetts	17	570	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Michigan	25	161	489	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minnesota	5	413	232	34	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nevada	5	570	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Hampshire	10	161	489	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Mexico	3	12	413	232	34	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New York	12	570	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Carolina	2	161	489	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Dakota	5	413	232	34	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ohio	29	570	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oregon	10	161	489	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pennsylvania	19	570	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rhode Island	5	413	232	34	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tennessee	10	570	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Texas	3	161	489	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vermont	14	570	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Virginia	2	413	232	34	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Washington	4	161	489	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West Virginia	3	570	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wisconsin	49	413	232	34	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	335	4781	631	80	167	5659	62	7	14	22	84									

\*= Includes instances where more than one species of host plant was found infested in individual counties.

S= Specimens of potato tuber were found in stored potatoes at Reno and Elko, Nevada. The infested potatoes originated outside the State of Nevada.

Table 2.- List of counties found infested by potato tuber worm during 1944

<u>Alabama</u>	Jefferson	<u>Texas</u>
Covington	Lafayette	Cameron
	Lee	Dimmit
<u>Arizona</u>	Leon	Hidalgo
Cochise	Liberty	
Maricopa	Madison	<u>Virginia</u>
Pima	Manatee	Northampton
Santa Cruz	Monroe	Princess Anne
	Orange	
<u>Arkansas</u>	Palm Beach	<u>Washington</u>
White	Putnam	Yakima
	Sarasota	
<u>California</u>	St. John's	<u>Wisconsin</u>
Alameda	Suwannee	Columbia
Kern	Taylor	Crawford
Los Angeles	<u>Georgia</u>	Dane
Monterey	Chatham	Dodge
Orange		Fond du Lac
San Diego	<u>Indiana</u>	Grant
San Joaquin	DeKalb	Iowa
San Luis Obispo		Jefferson
Santa Barbara	<u>Maryland</u>	La Crosse
Santa Clara	Worcester	Marathon
Santa Cruz		Milwaukee
Solano	<u>North Carolina</u>	Monroe
	Beaufort	Oneida
<u>Delaware</u>	Currituck	Outagamie
Kent		Polk
Sussex	<u>Ohio</u>	Portage
	Franklin	Racine
<u>Florida</u>	Sandusky	Richland
Alachua		Rock
Clay	<u>Pennsylvania</u>	Sauk
Columbia	Philadelphia	Shawano
Dixie		Vernon
Gadsden	<u>Tennessee</u>	Walworth
Gilchrist	Montgomery	Waukesha
Hamilton		Waupaca
Indian River		Winnebago



Table 3.-List of counties examined for potato tuber worm during 1944.

<u>Alabama:</u> Covington	<u>Florida</u> Alachua Broward Clay Columbia Collier Dade Dixie Gadsden Gilchrist Hamilton Indian River Jackson Jefferson Lafayette Lee Leon Liberty Madison Manatee Monroe Orange Palm Beach Putnam Sarasota St. Johns Suwannee Taylor	<u>Elkhart</u> Fulton Kosciusko Lagrange Lake La Porte Marshall Noble Porter Pulaski Starke Steuben Saint Joseph
<u>Arizona</u> Cochise Coconino Graham Greenlee Maricopa Pima Pinal Santa Cruz Yavapai Yuma		<u>Kentucky</u> Christian Logan Muhlenberg Todd
<u>Arkansas</u> Howard White		<u>Maine</u> Aroostook Penobscot Piscataquis Waldo
<u>California</u> Alameda Kern Los Angeles Monterey Orange San Diego San Joaquin San Luis Obispo Santa Barbara Santa Clara Santa Cruz Solano	<u>Georgia</u> Chatham	<u>Maryland</u> Garret Worcester
<u>Connecticut</u> Fairfield Hartford Litchfield Middlesex New Haven New London Tolland Windham	<u>Idaho</u> Twin Falls	<u>Massachusetts</u> Barnstable Berkshire Bristol Essex Franklin Hampden Hampshire Middlesex Norfolk Plymouth Worcester
<u>Delaware</u> Kent New Castle Sussex	<u>Illinois</u> Adams Cook Jo Daviess Madison McHenry Saint Clair Will	<u>Michigan</u> Antrim Bay Emmet
	<u>Indiana</u> Allen DeKalb	



Table 3.-List of counties examined for potato tuber worm during 1944  
continued

Grand Traverse	Humbolt	Pembina
Houghton	Lyon	Traill
Jackson	Pershing	Walsh
Kent	Washoe	
Lapeer		<u>Ohio</u>
Lenawee	<u>New Hampshire</u>	Ashtabula
Macomb	Belknap	Brown
Marquette	Carroll	Butler
Monroe	Cheshire	Clark
Montcalm	Coos	Clermont
Osceola	Grafton	Clinton
Otsego	Hillsboro	Columbiana
Presque Isle	Merrimack	Coshocton
Wexford	Rockingham	Darke
	Strafford	Delaware
	Sullivan	Erie
<u>Minnesota</u>		Fayette
Aitkin	<u>New Mexico</u>	Franklin
Anoka	Bernalillo	Geauga
Becker	Sandoval	Hardin
Benton	Valencia	Highland
Beltrami		Huron
Chisago	<u>New York</u>	Licking
Clay	Clinton	Lorain
Freeborn	Cortland	Lucas
Goodhue	Franklin	Madison
Hennepin	Genesee	Ottawa
Isanti	Livingston	Paulding
Itasca	Niagara	Pickaway
Kittson	Oneida	Richland
Marshall	Onondaga	Sandusky
Mille Lacs	Orleans	Seneca
Morrison	Seneca	Wayne
Norman	Steuben	Wood
Otter Tail	Wayne	
Pine		<u>Oregon</u>
Polk		Benton
Ramsey	<u>North Carolina</u>	Lane
Roseau	Beaufort	Lincoln
Stearns	Currituck	Linn
Todd		Marion
Wadena	<u>North Dakota</u>	Multnomah
	Cass	Polk
<u>Nevada</u>	Grand Forks	
Elko		

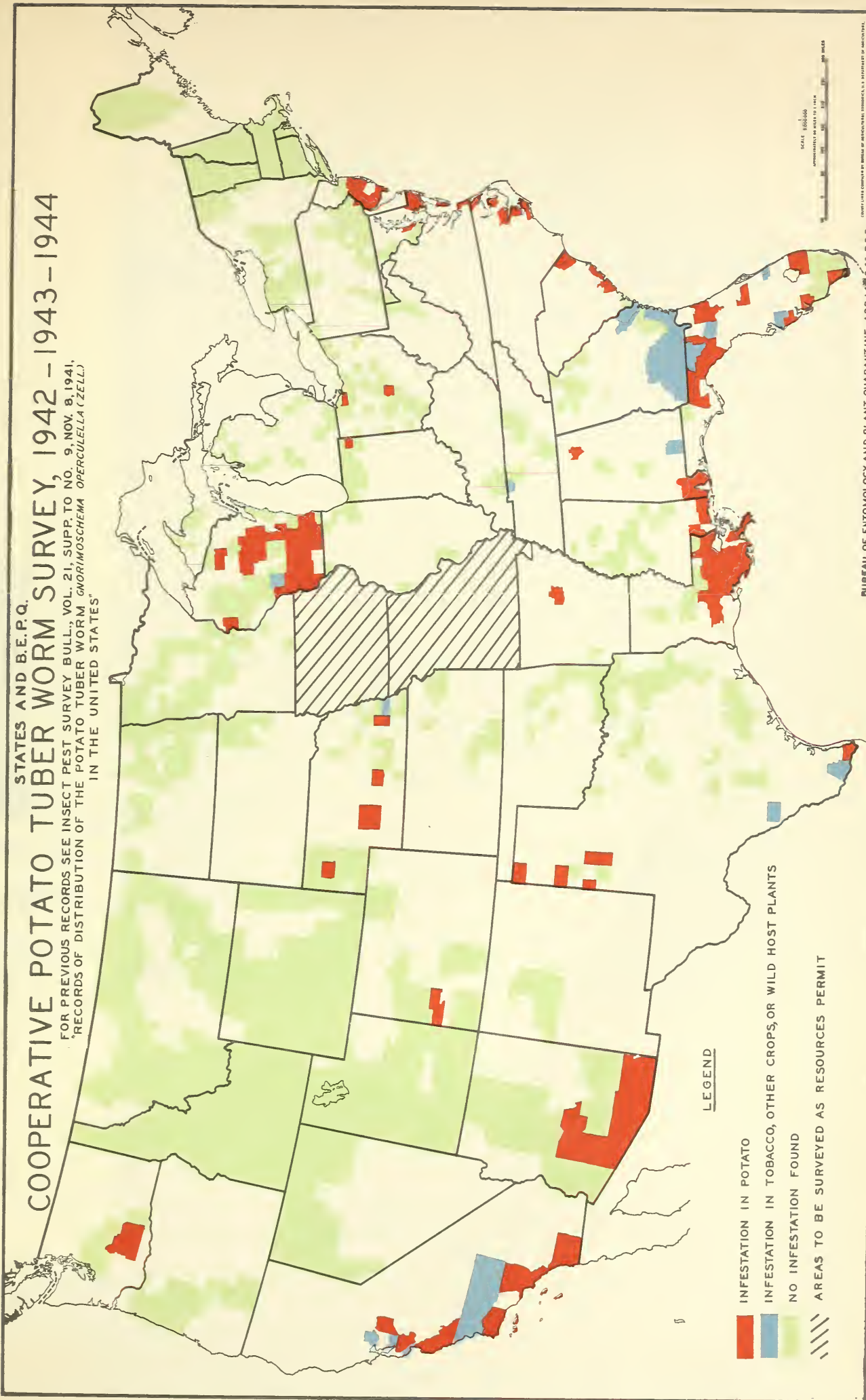
Table 3.-List of counties examined for potato tuber worm during 1944  
continued

Tillamook	<u>Texas</u>	Dodge
Washington	Cameron	Door
Yamhill	Dimmit	Dunn
	Hidalgo	Eau Claire
<u>Pennsylvania</u>		Fond du Lac
Berks	<u>Vermont</u>	Green Lake
Bucks	Addison	Grant
Cambria	Bennington	Iowa
Chester	Caledonia	Jackson
Cumberland	Chittenden	Jefferson
Dauphin	Essex	Juneau
Delaware	Franklin	Kenosha
Erie	Grand Isle	Kewaunee
Franklin	Lamoille	La Crosse
Lancaster	Orange	Langlade
Lehigh	Orleans	Manitowoc
Luzerne	Rutland	Marathon
Montgomery	Washington	Marquette
Northampton	Windham	Milwaukee
Philadelphia	Windsor	Monroe
Potter		Oneida
Schuylkill	<u>Virginia</u>	Outagamie
Somerset	Northampton	Ozaukee
York	Princess Anne	Polk
		Portage
<u>Rhode Island</u>	<u>Washington</u>	Racine
Bristol	Benton	Richland
Kent	King	Rock
Newport	Pierce	Rusk
Providence	Yakima	Sauk
Washington		Shawano
	<u>West Virginia</u>	Sawyer
<u>Tennessee</u>	Preston	St. Croix
Cheatham	Randolph	Trempealeau
Cumberland	Tucker	Vilas
Davidson		Vernon
Grundy	<u>Wisconsin</u>	Walworth
Montgomery	Barron	Washburn
Morgan	Chippewa	Washington
Putnam	Clark	Waukesha
Robertson	Columbia	Waupaca
Scott	Crawford	Waushara
White	Dane	Winnebago

# COOPERATIVE POTATO TUBER WORM SURVEY, 1942 - 1943 - 1944

STATES AND B.E.P.Q.

FOR PREVIOUS RECORDS SEE INSECT PEST SURVEY BULL., VOL. 21, SUPP. TO NO. 9, NOV. 8, 1941,  
"RECORDS OF DISTRIBUTION OF THE POTATO TUBER WORM *GNORIMOSCHEMA OPERCULELLA* (ZELL.)  
IN THE UNITED STATES"



## LEGEND

- INFESTATION IN POTATO
- INFESTATION IN TOBACCO, OTHER CROPS, OR WILD HOST PLANTS
- NO INFESTATION FOUND
- AREAS TO BE SURVEYED AS RESOURCES PERMIT

SCALE 1:100,000  
APPROXIMATELY AS OF 1942

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE APR. 14, 1945, B.B.B.

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